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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Estes et al.

Serial No.: 10/027,160

Group Art Unit: 1751

Examiner: G. Webb

Filed: 20 Dec. 2001

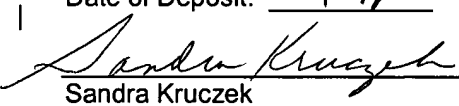
Attorney Docket No. 1000276-0003

**Certificate of Mailing (37 CFR 1.8(a))**

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Sandra Kruczek

**Affidavit Under 37 CFR 1.131**

S I R:

We the named inventors hereby declare as follows:

1. We are the named inventors of the subject matter that is claimed and for which a patent is sought on the invention as above mentioned. This application was filed on 21 Dec. 2001. This application is a divisional application of 09/520,653 (filed on 01 March 2000), which is a divisional application of 09/038,054 (filed on 11 March 1998), which claims the benefit of the earlier filing date of provisional patent application 60/045,072 (filed on 29 April 1997). As such, this application has an earliest effective filing date of 29 April 1997.

2. In the Office Action dated 21 Jan. 2004, the Examiner rejected the claims under section 102(e) as being anticipated by Sidotti (5,865,851) and under section 102(e) as being anticipated by Tyerech (5,712,240).

Sidotti issued on 02 Feb. 1999, and has a section 102(e) filing date of 18 June 1996. Tyerech issued on 27 Jan. 1998 and has a section 102(e) filing date of 01 Oct. 1996. Tyerech's priority dates to the GB applications are irrelevant with respect to section 102(e).

Because Sidotti predates Tyerech, swearing behind Sidotti equally removes Tyerech from consideration. As such, to the extent that necessary, applicants discuss the prior invention of Sidotti and Tyerech by discussing Sidotti.

3. We reviewed and understand the contents of the cited patent of Sidotti and Tyerech.

4. This written document is an affidavit of prior invention to overcome the cited patents of Sidotti and Tyerech. We, the inventors of the subject matter of the rejected claims, hereby submit this oath to overcome these references. We performed certain acts described below.

#### **I. Showing of Facts Through Document Evidence**

5. Below are facts that show a conception of the invention on or before the 18 June 1996 filing date of Sidotti coupled with due diligence from such conception to a subsequent actual reduction to practice or to the provisional application filing date of 29 April 1997.

6. **Exhibit A** is a slide show summary created and dated before 18 June 1996 (date redacted). We prepared this slide show in preparation for a presentation to Whirlpool, our employer and the assignee of the application. **Exhibit B** is a document entitled, "Non Aqueous Fluid Assessment" which sets up testing protocols using non-aqueous working fluids. This document too was generated prior to 18 June 1996.

#### **A. Facts establishing conception**

7. In general, the facts of Exhibits A and B are hereby incorporated by reference. Moreover, we present the following facts to establish a conception of the invention on or before the 18 June 1996 Sidotti filing date.

##### **1. Conception**

8. The basic inventive concept of the application is the fluid composition used in non-aqueous laundering.

9. The Examiner presented Sidotti as teaching various ingredients. In particular, the Examiner contends in paras. 7-9 that the fluorosurfactants are analogous to the working fluid. First, as explained in the contemporaneously filed Office Action Response, the mere fact that the Sidotti compound is a surfactant means it is not a working fluid as claimed. This means that Sidotti does not teach a working fluid as claimed and thus cannot anticipate.

10. The details of Exhibit A support conception of the claimed invention. Thus, the scope of this affidavit is commensurate with the scope of the claimed subject matter. Particularly, Exhibit A shows that "Project Hope" concerns working fluid chemistries. Some of the exemplary working fluids include Flourinert and possess the properties of being an ideal working fluid. The next slide shows Project Hope and the various characteristics of an exemplary non aqueous working fluid. The next slide shows that hundreds of compounds were

selected for further testing and that several were currently being bench tested. (See Exhibit B for some testing protocols).

## **2. Effective date of Sidotti**

11. As indicated on the face of the Sidotti patent, Sidotti issued on 02 Feb. 1999, and has a section 102(e) filing date of 18 June 1996. Accordingly, the date to overcome is 18 June 1996.

## **3. On or before the effective date of Sidotti**

12. We allege that the acts relied upon to establish the date on or before 19 June 1996. The testing and the exhibits attached were generated prior to the effective date of Sidotti.

## **B. Facts establishing reduction to practice**

13. In general, the facts of Exhibits A and B are hereby incorporated by reference. Moreover, we present the following facts to establish a reduction to practice.

### **1. Actual reduction to practice**

14. After conception of the invention on or before 18 June 1996, we tested or had the invention tested to establish its capacity to successfully perform its intended purpose. Exhibit B represents an invention testing protocol/assessment that discusses the experiments that would be run during a period starting before 18 June 1996 and into later parts of 1996.

15. Exhibit A shows a slide show summary generated and dated prior to 18 June 1996 that shows that of the many chemicals that exhibited the desired characteristics, several were chosen as candidates. Several were benchtop tested.

### **2. Constructive reduction to practice**

16. We allege that the present application for a U.S. patent claims the same invention disclosed in the provisional application filed on 29 April 1997.

17. Therefore, constructive reduction to practice was achieved on 29 April 1997.

## **C. Facts establishing reasonable diligence**

18. We present the following facts to establish that there was reasonable diligence from on or before the 18 June 1996 effective date of Sidotti to the actual reduction to practice of Exhibits A or B or alternatively to the provisional filing date.

19. As noted above, conception occurred on or before the 18 June 1996 filing date of Sidotti. Moreover, actual reduction to practice occurred on or before 29 April 1997. We assert that there was reasonable diligence from conception to reduction to practice, either actual or constructive. Exhibits A and B indicate that several exemplary working fluids were selected as having desirable characteristics and these chemicals were submitted for further bench testing. As Exhibit A shows, we were cognizant of the need to pursue patent applications to protect the invention. The inventors ultimately timely filed a provisional patent application on 29 April 1997. The selection of chemicals, the experiments, and the actual filing of a patent application indicate a reasonable diligence period from on or before the Sidotti filing date.


20. Alternatively, the time period taken for completion of the application constitutes reasonable diligence. During this time period, we and/or our representative worked reasonably hard and expeditiously to prepare, execute, and file an application in the United States. Accordingly, there was reasonable diligence from on or before the Sidotti filing date to the filing of the application of the present invention.

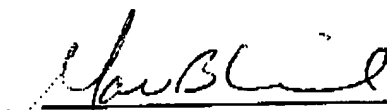
## **II. Allegations and other statements**

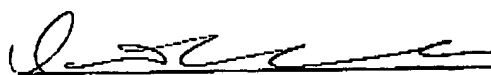
21. We allege that the acts relied upon to establish the date on or before Sidotti were carried out in the United States.

## **III. Signatures and Declaration in Lieu of Oath Under 37 CFR 1.68**

22. We hereby declare that the statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. We acknowledge that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon.

 20 April 2004  
Tremitchell Wright Date

 20 April 2004  
Mark Kovich Date

 20 April 2004  
Daniel Conrad Date



# **Non-Aqueous Wash System Development**

***CTD Laundry  
1996 Project***

Whirlpool Confidential



*CTD Laundry*  
*Non-Aqueous Projects*

▲ Inert Working Fluids  
- Project Hope 1996



# *Alternative Technologies Project Hope*

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- ★ Define the Ideal Inert Working Fluid
  - Low / No Pressure System
- ★ Conduct Technology Assessments of Non-Aqueous Fluids
  - Fluorinert (3M)
  - Hydrocarbon Compounds
  - INVERT (Dow)
  - Rynex (Perc Replacement)
- ★ Develop Whirlpool IP Strategy and Portfolio





# *Project Hope Flourinert*

- ★ Produced by 3M
- ★ Used for Electronic Component Cooling
- ★ Initially Waste Stream Product
- ★ Current Cost ~\$400/gallon
- ★ Inert Fluid (Non-Reactive)
- ★ Extremely Low Surface Tension (~15 dynes/cm)
- ★ Low Vapor Pressure (~0.1mm Hg) (Fast Drying)
- ★ No Deterusive Properties (Cleaning)
- ★ Potential Transport Medium
- ★ Non-Wetting (Still in Control)



# *Project Hope Ideal Fluid*

- ★ Searching for:
  - Non-Flammable
  - Non-Toxic
  - Environmentally Compatible
- ★ Reviewed 58,000 Compounds/18 Classes to Date
- ★ Currently, 293 Compounds Remain for Second Level Screening
- ★ Currently, detailed screening of 10 compounds in progress (Benchtop Testing)
- ★ Using Chemistry Assessment to Define Ideal Working Fluid for IP Portfolio and Next Steps

## **Non-Aqueous Fluid Assessment**

### **1. Chemical Properties Evaluation**

- \* Surface tension
- \* Solubilities ( Water, Oil, Surfactants )
- \* Stabilities

### **2. Detergent Evaluation**

- \* Particulate removal
- \* Oily removal
- \* Stains

### **3. Fabric Care Evaluations**

- \* Shrinkage
- \* Tensile strength
- \* Dye loss or mobility

### **4. Material Compatibility**

- \* Plastics
- \* Stainless steel
- \* Rubber

### **5. Safety Assessment**

### **6. Environmental Assessment**

## 1. Chemical Properties Evaluation

### Surface Tension:

Place 50 ml sample into the tensiometer vessel  
Temperature of sample 70F (21C) remain constant  
Take three samples

### Solubilities:

Place a 50 ml sample into a 500 ml flask  
Place a stir bar into flask  
Maintain a constant temperature of 70F (21 C)  
Add the desired solute in 1 ml increments  
Record amount of solute which solubilizes into solution

### Stabilities: (In Fume Hood w/ Glass Down)

Add 10 ml sample to a 100 ml flask  
Place stir bar into flask  
Constant temperature of 70 F (21C)  
Add desired solute ( ie. Bleach, Hydrogen Peroxide, etc.)  
Observe and record stability

## 2. Detersive Evaluation

### Particulate removal

Add 500 ml of fluid to Non-Aqueous setup  
Place 3 AS-9, PC-9 swatches in the container  
Agitate for 5 min @ 100 spm  
Temperature maintained at 70 F (21C)  
Remove swatches and hang dry in Fume hood  
Read swatches on colorimeter

### Oily soil removal

Add 500 ml of fluid to Non-Aqueous setup  
Place 3 oily soil swatches in to container  
Agitate for 5 min @ 100 spm  
Temperature maintained at 70F (21C)  
Remove swatches and hang dry in Fume hood  
Read swatches on colorimeter  
Perform soxlet extraction to determine oily soil remaining

### Stain removal

Add 500 ml of fluid to Non-Aqueous setup  
Place selected stain swatches into container  
Agitate for 5 min @ 100 spm  
Temperature maintained at 70 F (21C)  
Remove swatches and hang dry in Fume hood  
Read swatches on colorimeter

### 3. **Fabric Care Evaluation**

#### *Dimensional Stability*

Measure length and width of swatch and record  
Place 250 ml of selected fluid into container  
Add selected fabric swatches to fluid (ie. Cotton, Wool, Silk, Polyester, & Blends)  
Let swatches soak for 5 minutes  
Remove swatches and dry flat  
After dry, Measure and record

#### *Tensile strength*

Measure the tensile strength of material  
Place 500 ml of selected fluid into container  
Add selected fabric swatches to fluid (ie. Cotton, Wool, Silk, Polyester, & Blends)  
Agitate swatches for 5 min @ 100 spm  
Remove swatches and dry flat in fume hood  
Repeat above four times (total of five trials)  
Measure tensile strength, if no change repeat for 10, 15, 20, 25 trials.

#### *Dye Loss and Mobility*

Read white receivers on colorimeter  
Place 500 ml of fluid into Non-Aqueous setup  
Add a red and blue dye swatch plus two receivers  
Agitate for 5 min @ 100 spm  
Remove swatches and hang dry in Fume hood  
Read white receivers on colorimeter

#### 4. **Material Compatibility**

##### *Plastic Compatibility*

Cut a 2" X 2" piece of selected plastic  
Weigh plastic sample and record  
Place in a 500 ml beaker  
Add sufficient amount of selected fluid to immerse plastic  
Cover beaker  
Weigh the plastic sample each day for the first ten days  
Record the weight  
Record and additional observations (ie. discoloration, thinning, cracking, etc)

##### *Stainless Steel Compatibility*

Cut a 1" X 1" piece of stainless steel  
Weigh sample of stainless steel and record  
Place in a 500 ml beaker  
Add sufficient amount of selected fluid to immerse steel  
Cover beaker  
Weigh the stainless steel sample each day for the first ten days  
Record the weight  
Record and additional observations (ie. discoloration, thinning, cracking, etc)

##### *Rubber Compatibility*

Cut a 2" X 2" piece of selected rubber sample  
Weigh the rubber sample and record  
Place in 500 ml beaker  
Add sufficient amount of selected fluid to immerse rubber  
Cover beaker  
Weigh the rubber sample each day for the first ten days  
Record weight and additional observations

5. **Environmental Assessment:**

6. **Safety Assessment:**